

characterised in that the forward error correction coding of the first and second signals includes the step of puncturing and the bits which are punctured from the portion of the first signal are different from the bits punctured from the portion of the second signal.

27. The method according to claim 26, characterised in that the forward error correction coding of the first and second signals includes convolutional or turbo coding.

28. The method according to claim 26, further characterised by the steps of receiving the forward error correction coded first and second signals; and decoding the first and second forward error correction coded signals to obtain the user information.

29. The method according to claims 28, characterised in that the decoding step is preceded by a depuncturing step.

30. The method according to claim 28, characterised in that the decoding step includes one of: depuncturing each of the first and second forward error correction coded signals separately, combining the first and second depunctured signals and then decoding the combined signal; depuncturing each of the first and second forward error correction coded signals separately and then decoding and combining the first and second signals simultaneously in a multi-input decoder; depuncturing each of the first and second forward error correction coded signals separately, soft decoding each of the first and second depunctured coded signals separately, and then selecting on a bit-by-bit basis from the first and second soft decoded signals.

31. A method of operating a receiver in a telecommunications system, comprising the steps of: receiving a first forward error correction coded first signal; receiving a second forward error correction coded second signal substantially simultaneously with the first signal, each of the first and second signals having a different forward error correction coding, each of the first and second signals being decodable to recover substantially the same uncoded user message and the first and second signals being digital signals; and

0901121-032401

a1

decoding the first and second received signals to obtain the user message, characterised in that and the forward error correction decoding of the first and second signals includes the step of depuncturing and the bits which are punctured from the first signal are different from the bits punctured from the second signal.

32. The method according to claim 31, characterised in that the forward error correction coding of the first and second signals includes convolutional or turbo coding.

33. The method according to claims 31, characterised in that the decoding step is preceded by the depuncturing step.

34. The method according to claim 31, characterised in that the decoding step includes one of: depuncturing each of the first and second forward error correction coded signals separately, combining the first and second depunctured signals and then decoding the combined signal; depuncturing each of the first and second forward error correction coded signals separately and then decoding and combining the first and second signals simultaneously in a multi-input decoder;

depuncturing each of the first and second forward error correction coded signals separately, soft decoding each of the first and second depunctured coded signals separately, and then selecting on a bit-by-bit basis from the first and second soft decoded signals.

35. A transmitter system comprising one or more transmitters, the one or more transmitters comprising one or more forward error correction coders; wherein the one or more transmitters and the one or more forward error correction coders are adapted to transmit, substantially simultaneously over separate first and second telecommunication channels, respectively a first and a second forward error correction coded signal, the first and second signals being digital signals, each signal nominally containing the same user information, characterised in that the forward error correction coder includes a puncturing unit and the puncturing unit is adapted so that the bits which are punctured from the first signal are different from the bits punctured from the second signal.

36. A telecommunications system comprising:

098344 0860

al

one or more transmitters and one or more receivers; the one or more transmitters including one or more forward error correction coders; wherein the one or more transmitters and the one or more forward error correction coders are adapted to transmit, substantially simultaneously over separate first and second telecommunication channels, respectively a first and a second forward error correction coded signal, the first and second signals being digital signals, each signal nominally containing the same user information, characterised in that the forward error correction coder includes a puncturing unit and the puncturing unit is adapted so that the bits which are punctured from the first signal are different from the bits punctured from the second signal.

37. The telecommunications system according to claim 36, further characterised by:

one or more receivers comprising:

a forward error correction decoder for substantially simultaneously decoding the first forward error correction coded signal and the second forward error correction coded signal, each of the first and second signals being decodable to recover the same uncoded user message, the first and second signals being digital signals and the forward error correction decoder including a de-puncturing unit, the de-puncturing unit being adapted so that the bits which are de-punctured from the first signal are different from the bits de-punctured from the second signal.

38. A telecommunications receiver system, comprising:

one or more receivers comprising:

a forward error correction decoder for substantially simultaneously decoding a first forward error correction coded signal and a second forward error correction coded signal, each of the first and second signals being decodable to recover the same uncoded user message, the first and second signals being digital signals, characterised in that the forward error correction decoder including a de-puncturing unit, the de-puncturing unit being adapted so that the bits which are de-punctured from the first signal are different from the bits de-punctured from the second signal.

39. The system according to claim 35, characterised in that the forward error correction coding of the first and second signals includes convolutional or turbo coding.

09831421.082401

40. The system according to claim 36, characterised in that the forward error correction coding of the first and second signals includes convolutional or turbo coding.

41. The system according to claim 38, characterised in that the forward error correction coding of the first and second signals includes convolutional or turbo coding.

42. The system according to claim 37 , characterised in that the de-puncturing unit and the decoder are adapted for one of the following:

the depuncturing unit depunctures each of the first and second forward error correction coded signals separately and the decoder decodes each of the depunctured signals separately;

the depuncturing unit depunctures each of the first and second forward error correction coded signals separately, and the decoder comprises a combiner which combines the first and second depunctured signals and subsequently the decoder decodes the combined signal;

the decoder is a multi-input decoder, the depuncturing unit depunctures each of the first and second forward error correction coded signals separately and then the decoder decodes and combines the first and second signals simultaneously;

the decoder includes a soft decoder and a combiner, the depuncturing unit depunctures each of the first and second forward error correction coded signals separately, the decoder soft decodes each of the first and second depunctured coded signals separately, and then the combiner combines the decoded first and second signals by selecting on a bit-by-bit basis from the first and second soft decoded signals in a selector.

43. The system according to claim 38 , characterised in that the de-puncturing unit and the decoder are adapted for one of the following:

the depuncturing unit depunctures each of the first and second forward error correction coded signals separately and the decoder decodes each of the depunctured signals separately;

the depuncturing unit depunctures each of the first and second forward error correction coded signals separately, and the decoder comprises a combiner which combines the first and second depunctured signals and subsequently the decoder decodes the combined signal;

092141-082401  
T04280-1247E360

the decoder is a multi-input decoder, the depuncturing unit depunctures each of the first and second forward error correction coded signals separately and then the decoder decodes and combines the first and second signals simultaneously;

the decoder includes a soft decoder and a combiner, the depuncturing unit depunctures each of the first and second forward error correction coded signals separately, the decoder soft decodes each of the first and second depunctured coded signals separately, and then the combiner combines the decoded first and second signals by selecting on a bit-by-bit basis from the first and second soft decoded signals in a selector.

44. The method according to claim 26, characterised in that the telecommunications system is a mobile radio telecommunications system.

45. The method according to claim 31, characterised in that the telecommunications system is a mobile radio telecommunications system.

46. The method according to claim 26, characterised in that the first and second forward error correction coded signals are spread spectrum signals.

47. The method according to claim 31, characterised in that the first and second forward error correction coded signals are spread spectrum signals.

48. The method according to claim 26, characterised in that the telecommunications system is a code division multiple access system.

49. The method according to claim 31 characterised in that the telecommunications system is a code division multiple access system.

50. The system according to claim 35, characterised in that the telecommunications system is a mobile radio telecommunications system.

51. The system according to claim 36, characterised in that the telecommunications system is a mobile radio telecommunications system.

0903141-0840  
T01230-1245860

52. The system according to claim 38, characterised in that the telecommunications system is a mobile radio telecommunications system.

53. The system according to claim 35, characterised in that the first and second forward error correction coded signals are spread spectrum signals.

54. The system according to claim 36 characterised in that the first and second forward error correction coded signals are spread spectrum signals.

55. The system according to claim 38 characterised in that the first and second forward error correction coded signals are spread spectrum signals.

56. The system according to claim 35 characterised in that the telecommunications system is a code division multiple access system.

57. The system according to claim 36 characterised in that the telecommunications system is a code division multiple access system.

58. The system according to claim 38 characterised in that the telecommunications system is a code division multiple access system.

59. A mobile radio terminal comprising the receiver system of claim 38.

60. A mobile radio terminal comprising the transmitter system of claim 36.

61. A forward correction coder adapted to transmit a first and a second forward error correction coded signal, each signal nominally containing the same user information, substantially simultaneously over separate first and second telecommunication channels, respectively, the first and second signals being digital signals characterised in that the forward error correction coder includes a puncturing unit and the puncturing unit is adapted so that the bits which are punctured from the first signal are different from the bits punctured from the second signal.

0931421.03401  
T026T24E350